

**OBJECT ORIENTED PROGRAMMING
(CBS2204)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 4 (four) from Group B to E, taking one from each group.*

Candidates are required to give answer in their own words as far as practicable.

Group – A

1. Answer any twelve:

12 × 1 = 12

Choose the correct alternative for the following

- (i) Which component is responsible to interpret and run Java byte code?
(a) JVM (b) JRE (c) JIT (d) JDK
- (ii) It is a special method that is used to initialize objects and called automatically when an object of a class is created
(a) Main (b) Constructor
(c) Finalize (d) Run
- (iii) Which method can be accessed without using objects?
(a) static (b) dynamic (c) default (d) constructor
- (iv) Which of these keywords can be used to prevent inheritance of a class?
(a) super (b) constant (c) class (d) final
- (v) Which class can have abstract methods that are declared without a body?
(a) static (b) super (c) abstract (d) super
- (vi) What is a mechanism to handle the runtime errors in Java?
(a) Exception handling (b) Buffered reader
(c) Multithreading (d) Garbage collection
- (vii) In Java, which datatype is accepted by default in command line arguments?
(a) integer (b) string (c) character (d) float
- (viii) What is a thread in Java?
(a) A lightweight process that runs independently within a program
(b) A data structure to store variables
(c) A type of loop
(d) A synchronization mechanism.

- (ix) What is a deadlock in multithreading?
 (a) A situation where a thread runs indefinitely without blocking
 (b) A situation where all threads complete successfully
 (c) A situation where a thread is terminated forcibly
 (d) A situation where two or more threads are unable to proceed because they are each waiting for the other to release a resource.
- (x) In Java, what is the purpose of the sleep() method in threads?
 (a) It terminates all threads in the program
 (b) It pauses the execution of the current thread for a specified duration
 (c) It resumes the execution of a thread
 (d) None of These

Fill in the blanks with the correct word

- (xi) The _____ operator in Java is used for string concatenation.
- (xii) Java StringBuffer class is used to create _____ string.
- (xiii) The _____ is a method in java of the object class used to perform cleanup activity before destroying any object.
- (xiv) Defines multiple methods with the same name but different parameters within the same class is called _____.
- (xv) _____ identifies which objects are still in use (referenced) and which are not in use (unreferenced) to free up the memory.

Group - B

2. (a) What are the advantages of object oriented programming over procedural programming? [[CO1](Understand/LOCQ)]
 (b) Why is Java called platform independent? [[CO1](Understand/LOCQ)]
 (c) Why should the main method be declared as public and static in Java? If we use default access specifiers instead of public for the main method, then what will happen? Support your answer with proper justification. [[CO2](Understand/IOCQ)]
4 + 2 + (2 + 4) = 12
3. (a) Write a Java program that stores 5 numbers in an array through constructor and then prints the largest and smallest values of the array. [[CO1](Apply/IOCQ)]
 (b) Explain the difference between constructor and method in Java with proper examples. [[CO2](Analyze/LOCQ)]
6 + 6 = 12

Group - C

4. (a) What is interface in Java? What is the purpose of "implements" keywords in Java? [[CO3](Understand/IOCQ)]
 (b) Java does not support "multiple inheritance". Explain how can we implement this concept in Java? [[CO4](Analyse/HOCQ)]

- (c) What are the differences between abstract class and interface? *[[C04](Analyse/HOCQ)]*
(1 + 2) + 6 + 3 = 12
5. (a) What is the difference between static and non-static nested class? Give examples of both. *[[C04](Analyse/IOCQ)]*
 (b) Write a Java program to accept a string of sentence from the user and find out the following [use comma symbol as delimiter]
 (i) Count individual words
 (ii) Print individual words. *[[C04](Evaluate/IOCQ)]*
(3 + 3) + 6 = 12

Group - D

6. (a) What is a finally block? When and how is it used? Give a suitable example. *[[C05](Evaluate/IOCQ)]*
 (b) What are command line arguments? Give a suitable example using Java Code. *[[C05](Apply/IOCQ)]*
(2 + 2 + 2) + (2 + 4) = 12
7. (a) Discuss the differences between throw and throws in java. *[[C05](Apply/IOCQ)]*
 (b) Distinguish between FileInputStream and FileReader in java. *[[C05](Apply/IOCQ)]*
 (c) What is a wrapper class? Explain with examples. *[[C05](Understand/LOCQ)]*
4 + 4 + 4 = 12

Group - E

8. (a) What is the Main thread in Java? How to control the Main thread. *[[C06](Analyse/HOCQ)]*
 (b) What is the difference between blocked state and waiting state in java? *[[C06](Analyse/HOCQ)]*
(2 + 4) + 6 = 12
9. (a) Draw and describe Applet Life cycle. Can init() method be called more than once? Justify your answer. *[[C06](Remember/LOCQ)]*
 (b) Write an applet program which will take two numbers in a text box and will display the summation result in the third text box. *[[C06](Create/HOCQ)]*
(4 + 2) + 6 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	22.91	48.96	28.13

